Orissa Geological Service Association

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OGSA

Newsletter

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EDITORIAL

The National Mineral Policy 2008 has been published. I personally request each and every geoscientist to go through it. For the convenience of the reader I am distributing a copy of the summary with this Newsletter. It is very heartening for the Geoscientist community that the subject has ultimately received the attention it has deserved over the centuries. Geological Exploration has been put at the top of the priority chart in the Mineral Development Sector.

In this National Mineral Policy, there has been a call for upgrading the exploration facilities, equipment and technology. The concerned Central and State Government Agencies have been asked to take up these steps on urgent basis. Hoda committee recommendations have been considered to a great deal in finalizing this much awaited Policy.

As the exploration executives of the State Government, the members of OGSA should go through this latest mineral policy at length and try to implement the philosophy of this policy wherever possible.

NATIONAL MINERAL POLICY 2008

The policy highlights the role of the state in Chapter 4 through the following words of intelligence.

'In line with the current economic policy, in future the core functions of the State in mining will be facilitation of exploration and mining activities of investors and entrepreneurs, provision of infrastructure, and regulation and tax collection. Where it is deemed necessary for the State to continue in mining activities, there shall be arm's length between State agencies that explore and mine and those that regulate. There shall be transparency in the allocation of ore bodies for mining.'

Highlighting the importance of efforts from the private agencies in exploration sector, the document mentions the following statement in the last sentence of paragraph 5.1 in chapter 5.

'While these government agencies may continue to perform the tasks assigned to them for exploration and survey, in future the private sector would be the main source of investment in reconnaissance and exploration. For this to be accomplished, the regulatory regime would ensure clarity, fair play and security of investment.'

Regarding the exploration of strategic minerals the document mentions in para 5.2 of chapter 5 as follows.

'In conducting exploration for minerals, special attention will be given by government agencies to the development of strategic minerals through systematic investigation of various potential sources of their supply.'

Very sadly, the committee has ignored the name of the 'State Directorates' when it has urged upon the GSI and IBM to come forward to prepare a National Inventory of Mineral Resources. I believe that the State Directorates have to operate as the key agency for development of such a database.

'In coordination with the Geological Survey of India, the Indian Bureau of Mines will maintain a database in accordance with the latest version of the UNFC system. The database would comprise both physical and resource inventory and include a Tenement Registry with details of greenfield areas, brownfield areas and relinquished areas, including areas given up by the GSI as not worth pursuing. The data would be maintained online, giving instant information to prospective investors on what is available for reconnaissance, prospecting and mining.'

In Chapter 7 titled 'Strategy of Mineral Development' the document emphasizes the proposed action plan through clear words as follows.

'A thrust is to be given to exploitation of mineral resources in which the country is well endowed so that the needs of domestic industry are fully met, keeping in mind present and future needs, while at the same time exploiting the external markets for the minerals.'

Follow up of the Policy Framework has already started showing in the State Government's attitude towards the Directorate of Geology and a series of letters to the Directorate asking for suggestions regarding suitable upgradation of equipment and facilities. But it remains to be seen how fast they replenish the fast depleting technical personnel reserve of the Department.

REASSESSMENT OF IRON ORE RESOURCES- NEED OF THE HOUR

S.N. Parida, DDG

In view of growing demand of steel in the international market, the demand for iron ore, the principal raw material in steel making has increased substantially. With the advent of new liberalized Industrial, Mineral and Economic Policy of Govt. of India, several industrial houses including steel giant Posco, ArcelorMittal, Tisco have come forward for establishment of mega steel plants in Orissa. So far 47 MOUs have been signed by different Iron & Steel companies with Government of Orissa in steel sector. Considering the present resource status of iron ore in Orissa, it appears that the available quantity of raw materials may not be adequate in catering to the need of all the steel plants to come up. It may be mentioned here that major portion of the iron ore resources in the state lie within the leasehold blocks and the fate of bulk of the freehold resources are subjudice. In this context it may be suggested that exploration and discovery only can augment the existing iron ore resources in the state.

The exploration of both virgin and inadequately explored iron ore bearing areas by close drilling is felt highly necessary for proving additional reserve. Besides reassessment of some promising blocks like Malangtoli and estimation of reserve at lower cut off values of 50% Fe, no doubt, can enhance the resource figure manifold.

As a part of exploration and reassessment programme, the following iron ore bearing blocks need immediate attention for drilling.

1. Malangtoli and Thakurani-A Block in Keonjhar District.
2. Badamgarh Pahar, Parts of Baliapahar and Mankarnacha hill in Sundargarh district.
3. Virgin areas like outer-Malangtoli, south of khandadhar, Horomoto and left out portions in between some leaseholds in Keonjhar & Sundargarh districts.

Proper reassessment will enable Government of Orissa for a timely supply of adequate quantity of iron ore to the emerging steel projects and the state can also have surplus iron ore for future projects.

Excerpts from the NMP 2008

"The country is blessed with ample resources of a number of minerals and has the geological environment for many others. To exploit the country's geological potential it is important that scientific and detailed prospecting is carried out in search of its mineral resources. It will be ensured that regional and detailed exploration is carried out systematically in the entire geologically conducive mineral bearing area of the country using state-of-the-art techniques in a time bound manner.

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For these purposes the Geological Survey of India (GSI), the Indian Bureau of Mines (IBM) and the **State Directorates of Mining & Geology will be strengthened with man power, equipment and skill sets upgraded to the level of state of the art.**"

FRESH ASSESSMENT OF IRON ORE RESOURCES IN KOIRA VALLEY

N N Singh Deo, Geologist, D. Behera, Geologist, A.K. Mohanty, DDG

In order to cater to the need of iron ore in iron and steel sector of the State, the Iron Ore Inventory Programme launched during F.S. 06-07 and 07-08 by the Directorate has evaluated huge resources of iron ore in Koira valley. This resource evaluation programme involved preparation of composite plan showing the lease boundary with resource figure of working/ non-working mines and PL areas. This has also helped in the identification of unexplored blocks. This resource evaluation programme conducted over 8550 hectares has revealed a mineable reserve of 1169 million tonnes of iron ore having 58% to 65%Fe. A composite plan over 230 sq km on R.F. 1:50,000 has been prepared reflecting 39 working, 23 non working and 28 PL areas with resource figure thereon for quick reference. The work is under progress.

HUGE GRAPHITE RESOURCES IN DEOGARH DISTRICT

A.K. Mohanty, DDG, R.K. Mohanta, DDG

Huge graphite resources are reported in Deogarh group of rocks of Iron Ore Super Group. The area is located at about a distance of 35km from Deogarh district headquarters and features in Toposheet No 73 C/10 & C/14. This graphite mineralised belt stretches over a strike length of 25km with 1km average width extending from Kancohora village in the east to Gailo in the west. The important occurrences are Khajuribahal, Danteribahal and Rambhai. The graphite occurs as disseminations, veins and lenses in meta-argillaceous sediments as graphite schist. The FC content varies from 5% to 17%. The folial trend of the graphite schist varies from ENE-WSW to WNW-ESE with 65^0 to 70^0 southerly dip. The mining of these graphite resources will strengthen the economy of the, comparatively less mineralized, Deogarh district.

PROSPECT OF COAL IN MADHUPUR BLOCK- AN APPRAISAL

M. R. Panda, Geologist

Exploration for coal in Madhupur Block (IB valley coalfield) by the Directorate of Geology, Orissa dates back to mid-eighties. In course of exploration in Madhupur-Gopalpur link-up area, 16 boreholes were drilled at 800m grid interval in Madhupur Block itself. The block is bounded by the parallels 83^0 52' 44"- 83^0 53' 19" E and 21^0 52' 50"- 21^0 53' 17" N. It features in T.S.No. 64 O/13, at a distance of 10 km from Brajarajnagar Railway Station and 5 km from NH-

200. The N&NE boundary of the block is limited to the incrop of IB seam; whereas all the boreholes to S & SW are closed prematurely at high depths intersecting either Lajkura seam or a few splits of Rampur seam. Drilling up to IB seam has not been possible for the greater depth of occurrence in this part of the block. The maximum depth of the borehole drilled is 445.00m and has been closed after intersecting only three sections of Rampur seam.

Lajkura is the most conspicuous seam with two split sections ranging in thickness from 7.00m-30.00m and occurs in the southern half of the Block. The depth of occurrence of Lajkura ranges from 103.00m-273.00m. Besides two splits of Lajkura up to as many as six split sections of Rampur are also intersected in southern part of the block. In contrast, northern half of Madhupur block exhibit only poorly developed sections of Rampur and IB seams. The poor thickness of coal seams/ sections in northern part of the block can be ascribed to its closer proximity to the metamorphics in the north. Probably, the presence of a high southerly throwing fault in middle part of the block contributes for a higher depth of occurrence of seams with considerable thickness in southern part.

At this stage of exploration, an inferred reserve of about 140MT has been assessed for Madhupur block.

HIRAPUR IRON ORE DEPOSIT

D Sharma, Geologist

It has been long since the iron ore of Hirapur area has come to public notice. But there has been substantial ambiguity about the nature and origin of the iron ore in the area. Some authors have tried to include it within the BMQ deposits of BIF-I sequence. But the reality was unearthed during the recent programme of the Directorate which attempted the geological mapping, sampling and analysis of the ore to establish the genesis, type and a possible resource of this deposit.

The area is located in the Umarkote Tahasil & Block of Nabarangpur district. It is featured in T.S.No. 65 I/2 and is bound by latitudes 19°35'00" N to 19°37'00" N and 82°05'00" E to 82°11'45" E longitudes. Umerkote is the most important town of the area. The area under investigation can be approached from Umerkote town via the state highway running from Umerkote to Kondagaon. The nearest railway station is Kotapad Road on the Kirandul-Kottavalsa section of the South Eastern Railways.

The area under study is characterised by a very rugged and undulating topography represented by the Podagurha hill range which extends broadly in an East-West direction. The area to the north of Podagurha hill range is more or less flat. Hirapur hill peak named 'Saheb Dongri' which rises to a height of 929 metres above *msl* is the highest point in the area, while the lowest point is about 600 metres above Mean Sea Level and is situated in the north eastern part of the area. The area is drained by numerous streams that arise from the Podagurha hill range.

The main litho units encountered in the area are quartzo-feldspathic gneisses, pink granite, pegmatite, metabasic rocks, amphibolite etc. of Archaean age. The trend of foliation of the litho units is broadly East-West dipping steeply towards South at angles of 55° to 70°. Feruginous/ aluminous laterites are found to cap the peaks and plateaus of the Podagurha hill Range. Iron ore found in the area is associated with the metabasic rocks. The ore is of secondary nature and derived from the metabasic rocks. The ore is mainly Goethitic with a grade of around 58% to 62% Fe. Minute traces of haematite, limonite and magnetite are observed at some locations. The iron ore is found on the northern slopes of the Hirapur hill range and occurs as a layer of about 2m thickness in the weathered horizon of metabasic rocks. The area appears to hold good potential in view of the increasing global demand for iron ore.

FLOODING OF SAMBALPUR MINING COLONY AND POSSIBLE REMEDY

N.K.Patel, D.D.G.

Mining Colony comprising of 33 quarters is located at the south eastern outskirt of Sambalpur town (T.S.No. 64 O/15). It is adjacent to the bank of the Haradajhor, a tributary of river Mahanadi. The Dhobijhor, another tributary of Haradjhor also discharges near mining colony and both of them swell during flood and submerge the ground floor of the colony. The nearby areas up to Hirakud colony also get affected. Several times even boats have been deployed for rescue operation. The submerged area lies within 142m to 145 mRL above *msl*.

Geomorphological studies reveal that Haradajor has developed as many as three mouths in past to discharge its water into river Mahanadi. The initial course is located at the northwest portion and gradually shifted to southeastern side developing two Channel Islands. Presently, the first mouth has become dry and Dhobijhor gets adequate space to discharge water. When Hirakud Dam releases water in 40 sluice gates, the flood water of Mahanadi passes through the mouth of Haradajhor and does not allow the water of Dhobijhor and Haradajhor to discharge in to river Mahanadi. The back water of Dhobijhor and Haradajhor gets inside the colony and submerges the ground floor. The following remedial measures can be taken to check the flood.

1. The first river mouth of Haradajhor located in the NW side should be blocked by constructing check dam, so that water of Mahanadi river does not come through Haradajhor stream. By doing so, Dhobijhor can get ample scope to discharge the rain water into Haradajhor.
2. To restrict the spread of Dhobijhor, embankments can be constructed parallel to the stream on either side of it, for complete control of flood.

EXPLORATION PROJECTS BY THE DIRECTORATEOF GEOLOGY IN 2007-08

Headquarters, Bhubaneswar

- Continuation of exploration for diamond from primary source around Bharuamunda and Santoshpara in Nuapada district (T.S. No. 64 L/06)
- Systematic exploration to assess diamond potentiality from primary source in Kalmidadar area of Nuapada district (T.S. No. 64 L/05)
- Exploration for primary source of diamond in Arkholi area around Nangalbod (T.S. No. 64 L/08) and Kathiwadi area around Phulchih (T.S. No. 64 L/13) in Nuapada district
- Exploration of coal in Talcher West and Jagannath blocks of Talcher Coal field, Orissa (T.S. No. 73 H/1).
- Detailed assessment of coal in Madhupur block in Ib river coalfield, Jharsuguda district (T.S.No. 64 O/13)
- Remote Sensing studies for analysis of coastal geo-morphological features, from Baliharchandi to Dhamra, along Orissa coast

Balangir Zone

- Exploration for crystalline limestone around Khariar (GARRAMURA) of Nuapada district (T.S.No. 64 L/11 & L/15)

Brahmapur Zone

- Investigation for heavy minerals in beach sand around Udegiri NE sector along Puri coast (T.S.No. 74 E/2, E/6)
- Investigation for bauxite in Ushabali plateau of Kandhamal district (T.S. No. 65 M/9)

Dhenkanal Zone

- Assessment of heavy minerals in beach sand along Puri coast (T.S. No. 74 E/9, E/10, E/13, I/1 and I/15).
- Investigation for decorative and dimension stone in parts of Khurdha district, Orissa (T.S.No. 73 H/12).

Kendujhar Zone

- Inventory for iron ore resources in Keonjhar District (T.S. No. 73 G/5, G/16, F/8 & F/12)
- Mineral Potential Survey in Kesna-Jyotipur-Bhimapur Area of Mayurbhanj and Keonjhar Districts (T.S. No. 73 G/9 & 73 G/13)

Koraput Zone

- Investigation for iron ore resources around Hirapur in Nabarangpur District. (T.S. No. 65 I/2).

Sambalpur Zone

- Inventory of iron ore resources in Sundargarh district (T.S.No. 73 G/5)
- Assessment of iron ore around Dengula Sundargarh District (T.S.No 73 G/1)

PROPOSED EXPLORATION PROGRAMME FOR 2008-09

- Continuation of exploration for assessment of diamond from primary sources around Kalmidadar in Nuapada district (T.S. No. 64 L/5 & L/6)
- Continuation of exploration for diamond from primary source in Arkholi & Kathiwadi areas in Sinapali Block of Nuapada district (Toposheet No. 64 L/8 & L/13)
- Continuation of exploration for coal in Jagannath block of Talcher Coalfield (T.S. No. 73H/1)
- Continuation of exploration for coal in Madhupur block of Ib Valley Coalfield (T.S. No. 64 O/13)
- Geophysical investigation of the coastal tract near Puri to delineate suitable bedrock for suggesting measures to prevent erosion by tidal waves
- Remote Sensing studies for analysis of coastal geo-morphological features, from Dhamra to Orissa-West Bengal border, along Orissa coast
- Continuation of exploration for crystalline limestone around Khariar at Garramura of Nuapada district. (Toposheet No. 64 L/11 & L/15)
- Mineral Potential Survey around Sankarakhol-Chakapad stretch in parts of Kandhamal district (T.S. No.73 D/7)
- Continuation of systematic assessment of heavy minerals in beach sand along Puri coast (T.S. No. 74 E/2 & E/6)
- Systematic assessment of heavy minerals in Manikpatna block along Puri coast (T.S. No.74 E/10)
- Assessment of iron ore body lying in the northern part of Baliapahar Iron Ore Deposit in Sundargarh district, Orissa (TS No. 73 G/5)
- Investigation of Iron Ore around Rakma-Marsuan in outer Malangtoli area of Keonjhar district, Orissa (T.S. No.73 G/5)
- Assessment of iron ore occurrences around Malangtoli - Mandajorha area, Sundargarh district (T.S. No.73G/5)
- Inventory of iron ore resources in Sundargarh district (TS No 73G/1, 73G/2 and 73 G/5)
- Investigation for bauxite in Unsir, Samraja & Serenda Pahar in Keonjhar District (T.S. No. 73 G/6)
- Inventory of small and medium sized plateaus for bauxite in Dashmantpur block of Koraput district. (T.S. No. 65 I/16)

OGSA NEWS

Training

- Mrs S Jena and S Mishra, Geologists attended training programme on ArcGIS software at ESRI India, Kolkata from 9th to 14th June 2008.
- R K Kar, C B Das and D Sharma, Geologists attended training programme on Minex software at the Hyderabad Centre of Surpac Software India Pvt. Ltd from 28th to 30th July 2008.

Promotion and Posting

- J R Pattnaik promoted to the post of Joint Director Geology (L-I) and posted at Bhubaneswar
- B N Bhol promoted to the post of Joint Director Geology (L-II) and posted at Berhampur
- G D Panigrahi promoted to the post of Joint Director Geology (L-II) and posted at Sambalpur
- P K Ojha promoted to the post of Joint Director Geology (L-II) and posted at Bhubaneswar
- R K Mohanta promoted to the post of Deputy Director Geology and posted at Sambalpur.

Transfer and Posting

- A K Brahma, DDG transferred from Balangir to Berhampur.
- B C Mohanty, DDG transferred from Sambalpur to Dhenkanal.
- B N Bhol, DDG transferred from Bhubaneswar to Koraput.
- M R Mishra, DDG transferred from Bhubaneswar to Balangir.
- S K Padhi, DDG transferred from Berhampur to Bhubaneswar
- T Mohanta, DDG transferred from Koraput to Bhubaneswar.
- Bishnu Charan Sahu, Geologist transferred from Bhubaneswar to Kendujhar.
- D K Sahu, Geologist transferred from Dhenkanal to Koraput.
- D Sharma, Geologist transferred from Koraput to Bhubaneswar.
- K Nayak, Geologist transferred from Dhenkanal to Bhubaneswar.
- N Sahu, Geologist transferred from Sambalpur to Bhubaneswar.
- P C Mishra, Geologist transferred from Berhampur to Bhubaneswar.
- P C Vajani, Geologist transferred from Bhubaneswar to Berhampur .
- S K Dalai, Geologist transferred from Balangir to Dhenkanal.
- S P Nanda, Geologist transferred from Sambalpur to Koraput.

Retirement

- N M Hasan, JDG (L-II) retired on 29.02.2008 on superannuation.
- P K Narendra, JDG (L-I) retired on 30.04.2008 on superannuation.
- K Naik, JDG retired on 30.06.2008 on superannuation.
- Dr.R C Samal, JDG (L-I) retired on 31.08.2008 on superannuation.
- S K Mohanty, Geologist retired on 31st October, 2007 under VRS.

Seminar and Workshop

- S N Parida, DDG and P K Ojha, DDG attended the "4th Threshold value workshop cum discussion" organized by IBM from 24.01.08 to 25.01.08 at Bhubaneswar.
- S Mishra, Geologist attended the conference of "International Mining History Congress" at Bhubaneswar.
- S N Parida,DDG, P K Chand and S Sahu, Petrologists , S A Jena, R Das,B R Sethi, Geologists attended "National Seminar on Geology of Orissa-Contemporary Researches" organized by Alumni Association & PG Department of Geology, Utkal University, Bhubaneswar on 24th February, 2008. S N Parida, DDG and P K Chand, Petrologist presented papers titled "Geology & Exploration of Chromite in Tailangi mines" and "Petrology & Geochemisry of Ultramafics around Kaliahata" respectively.